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of this species. The specimen has been mislaid, however, and I am unable to verify the identification at the present time, which leaves the record somewhat doubtful.

124. *Myiadestes townsendii*. TOWNSEND'S SOLITAIRE.—Seen at Hachita on one or two occasions in October and November, and on the plain east of Apache, April 30.

125. *Turdus aonalaschkæ*. DWARF HERMIT THRUSH.—A few were met with in the hills until late in May.

126. *Turdus aonalaschkæ auduboni*. AUDUBON'S HERMIT THRUSH.—Rather less common than the preceding.

127. *Merula migratoria propinqua*. WESTERN ROBIN.—A few were seen at Apache the first week in April. Not again met with until August 7. Rare at Hachita in October.

228. *Sialia mexicana*. WESTERN BLUEBIRD.—Abundant everywhere during both migrations.

129. *Sialia arctica*. ARCTIC BLUEBIRD.—Abundant with the preceding species. A few probably winter in the mountain ranges.

OBSERVATIONS ON THE BIRDS OF JAMAICA, WEST INDIES.

BY W. E. D. SCOTT.

I. A LIST OF THE BIRDS RECORDED FROM THE ISLAND, WITH ANNOTATIONS.

(Continued from p. 277.)

In the July number of 'The Auk' it was stated that Mr. Taylor's notes on some of the birds there treated had not come to hand, and would be given later. They have since been received and are as follows.

124. *Crotophaga ani* (*Lin.*).—The Ani appears to be abundant in all parts of the island. It is one of the commonest birds near Kingston; and in most open or sparsely wooded lands, or in the vicinity of cultivated clearings, little groups or companies may nearly always be seen. Blackbirds are invariably present wherever cattle are pastured. I cannot recollect an instance in which I have noted a herd of cows at pasture without a flock of these birds appearing in company with them or in their immedi-

ate vicinity. This association is doubtless chiefly for the purpose of feeding on the ticks and other parasites on the animals, a good work largely shared by the Grackles (*Quiscalus crassirostris*). It is most interesting to watch a company of Blackbirds when thus engaged. Many are perched on the backs of the cattle (two or three sometimes on one cow), others are on the ground hopping about fearlessly among the grazing herd, searching for insects at the roots of the herbage or capturing those disturbed by the feet of the cattle. At this time one or more individuals are stationed on some tree close by, from which they now and again call to those in the open with that remarkable cry, variously syllabicated by some, but which I have at times thought strangely like the wailing of a young cat. Insects of all orders and their larvæ, ticks, grubs, etc., form their chief food. Occasionally perhaps a few small lizards are taken, and, I believe, the eggs of other birds, as I once found in the stomach of a female portions of an egg, apparently that of some small bird. Gosse records having seen these birds eating the ripe berries of the fiddle wood, but I have not noticed them at any time eating vegetable food.

The Blackbirds at their best have a very lean and shabby appearance, and are slow and awkward in their movements. I have watched an individual make several ineffectual attempts to alight on the frond of a cocoanut palm; but even among the branches of other trees their actions appear awkward. Their flight is slow and gliding, somewhat labored, and of little duration, the birds often appearing to fall short of the point originally aimed at. Yet they will chase the large yellow butterflies, and I was shown a large green locust that one of these birds was seen to capture in flight and afterwards drop. In the progress of a flock from place to place they do not usually fly all together, but move away in straggling groups or couples. One or more individuals first start off with their wailing call, followed soon after by two or three; after a little delay then two more go; another pause, then one, then three, and so on. If a tree has very dense foliage they alight (with much awkward scrambling) on the tops or extremities of the highest branches, where they may gain a clear and uninterrupted view, and this is usually the case when they are traversing very open country.

Their nesting habits are exceedingly curious and interesting. Many individuals (possibly members of one flock) work together in the construction of a large nest in which all the females of the company lay their eggs. The number of eggs deposited in different nests varies greatly but is of course dependent on the number of birds in a company. Six and eight eggs are commonly found. I once took eleven, and in August last year I saw a clutch of twenty-one that had been taken from a single nest! It is probable that normally not more than two eggs are deposited by each bird, but nothing definite can be said on this point. The nest, which is usually placed high up in a tall tree, very frequently in a clump of mistletoe on a bastard cedar, is a large, loosely constructed mass of twigs, entirely lined with dried leaves. But the most remarkable circumstance in connection

with the nesting of these birds is the deposition of the eggs in *regular layers* with leaves between. This custom I had long heard of before an opportunity offered for personal observation. In the first nest I examined, the eggs were in two distinct layers, separated by a deep bed of dry leaves; the bottom layer consisted of four eggs and these, strange to say, were all infertile. I believe this singular habit is practised in all cases where a large number of birds resort to the same nest. The eggs are a deep bluish green, but when freshly laid are covered with a white chalky coat which soon becomes much scratched and erased on all. Now what seems very singular is that comparatively little of this chalky covering gets rubbed off the sides, where from the turning over of the eggs in the nest we should expect to see the greatest extent of denudation, whereas *one or both ends* are nearly always *wholly* denuded. That this circumstance is not merely accidental I feel sure, as in a large series of clutches that I have examined more than two thirds of the number of eggs show this peculiarity. So cleanly and evenly is it done, and to such an extent, that I feel confident it is the work of the birds themselves, their beaks alone being able to accomplish it. At the same time it is easy to see that the marks and scratches at the sides are the result of friction with the twigs and leaves of the nest. Average measurements of the eggs are 1.33×1.20 inches. I have found eggs and young, in February and throughout the succeeding months to August, two or three broods probably being reared. I have also seen young, fully fledged but unable to fly, hopping about the branches of the nesting tree, and on another occasion, some, more advanced, searching for insects in the grass at the roots of a large guango tree in company with many old birds.

125. *Saurothera vetula* (Linn.).—The habits of this bird have been well described by Gosse. I am most familiar with it as a resident of the lowlands, though doubtless it is well dispersed over mountain and plain. At one time it occurred commonly in many of the dry gullies near Kingston as well as in some dense and unfrequented tracts of forest along the base of the Long Mountain; of late, however, I have not met with it again in these localities. This species seems to prefer the thickest woods, where it can pass by short flights from tree to tree. On alighting in a bush or tree, it traverses the branches with facility by a succession of vigorous jumps, when it appears active enough. Usually, however, it will sit on a twig in a dull and sluggish manner, scarcely if at all disturbed by the approach or passing of people. If observed too closely, it will move slowly from branch to branch, peering down through the leaves with the greatest apparent curiosity, all the while assuming very odd postures in its desire to scrutinize the intruder. I can fully bear out the remarks by Gosse as to the fierceness of this bird when taken in the hand. One that had been struck down by a stone from a catapult, and only stunned, could not be held until its beak had been secured; this individual I kept in a cage for a few days. It appeared quite reconciled to confinement, and greedily devoured lizards and roaches, snatching

eagerly at the former the instant they were presented. I always offered the lizards alive, tied at the end of a short thread, when they would be seized and instantly swallowed. Although the object of constant and diligent search, I never succeeded in finding the nest of this species, and I had even begun to despair of obtaining any reliable particulars concerning its mode of nesting. Late in the year 1890, however, a friend, then resident in the Vere district of the Parish of Clarendon, wrote me, saying that he had discovered a nest of this bird, which he described as a loose, flat structure of twigs; it was placed high up on a large tamarind tree and contained one egg. The egg remained in his possession for some time and was eventually broken, so that little more than half of the shell came into my possession. In shape it appeared to have been round-oval, the surface rough or chalky, and in color wholly dull white. I judged it to have been about the size of an average egg of the Savanna Blackbird (*Crotophaga ani*).

126. *Coccyzus minor* (Gmel.).—This Cuckoo I have found to be fairly common in the lowlands of Kingston and St. Andrew. At Port Henderson we frequently met with it among the mangrove thickets, and in the low, swampy lands near the seashore. I am not satisfied, however, that all the examples seen can be safely referred to this species; some individuals appeared smaller and paler and may have been representatives of the Florida variety, *C. m. maynardi*. As, however, I did not procure specimens for identification, the point remains unsettled. Between the months of June and August, several Cuckoos' nests with eggs were taken in the localities just mentioned. Of these a certain proportion can doubtless be safely ascribed to the present species, but in many cases the question of identity was invested with difficulty, *C. americanus* being also a common resident species, frequenting the same localities and nesting in just the same manner as *C. minor*; the points of difference, too, between the species are not such as could be clearly indicated to or appreciated by the native collectors, to whom we were indebted for most of the eggs obtained. Nests were occasionally found in mangrove clumps, more often in the spreading cashaw trees; they were always of the rudest possible construction, just half a dozen or more slender twigs laid without any pretense to arrangement, barely serving to accommodate the eggs; these differ in no appreciable respects from those of *C. americanus*.

127. *Coccyzus americanus* (Linn.).—The Yellow-billed Cuckoo, as stated above, frequents the woods and mangrove thickets at Port Henderson, where we met with it daily. Of the few well authenticated eggs obtained, four now in my possession, taken as late as August 1, were fresh. I have already referred to this Cuckoo as a resident species, though in all probability it may be found to be partially migratory. When at the Morant Cays in April, 1890, one or more of these birds haunted the low bushes along the shores, disappearing, however, in the course of a few days.

128. *Hyetornis pluvialis* (Gmel.).—No notes. I have not met with this species.

129. *Ceryle alcyon* *Linnaeus*.—Occurs commonly in Kingston harbor during the winter months. Individuals remain certainly until late in April.

130. *Todus viridis* (*Linnaeus*).—The Green Tody, or 'Robin' as it is familiarly called, appears to be very generally dispersed throughout the island and may even be said to be common in most parts. In all localities that I have visited, whether on the mountains at high elevations or among the woods of the plains, it has appeared equally abundant at all seasons. Banks of ravines and gullies, where the fringing forest is of dense and varied, but slender, growth, hedges with deep banks, woods and thickets bordering many roadways, and especially the steep, narrow bridle paths that wind up the mountain sides, where the banks are high, may be mentioned as some favored haunts. But of all localities there are few perhaps where these birds occur constantly in such numbers, or which offer more perfect situations for nesting than the gullies before mentioned. Many of these dry water-courses, that during prolonged rains become transformed into rushing, impassable torrents, are of considerable extent, and their sandy beds may be traced for miles inland. One gully in particular, where most of my observations on the habits of the Todies have been made, has a wide and tortuous course and banks that vary in places from low weed-covered mounds, to precipitous cliffs of clay between ten and twenty feet in height. In their choice of a situation for nesting, the birds are somewhat particular, preference being given to low, overhanging, weed-covered banks where the soil is light and friable. The tunnels are rarely, if ever, in high situations, but on the contrary may frequently be found at the sides of the shallow ditches and hollows that are commonly formed in soft soil during heavy rains. I have often surprised the Todies at work. In beginning a tunnel they cling in an awkward manner to the face of the cliff or bank, fluttering the wings frequently as if for support. So far as I have been able to observe, in digging they appear to employ the beak only, and I once took a Tody that had almost the entire half or side of the upper mandible worn away; this, however, was during a period of drought, when all vegetation was burnt and shrivelled, and the earth hard and unyielding. In most cases the whole work of excavation would seem to be performed by the birds, yet, I have noticed (in the gullies at least) that those portions of the banks usually selected for nesting are nearly always riddled with holes and cavities of different depths. Whether the birds ever take possession of one of these, or enlarge others to suit their needs, I have not discovered, but such a proceeding would seem highly probable in view of the labor which the work of excavation frequently entails. When digging into some of these holes in a search for the true nest of a Tody, I often find them in the occupation of strange tenants, such as field mice, lizards and spiders; the latter, black repulsive looking objects, are of common occurrence, especially in the depressions formed by the falling away of stones, etc.; so that some little caution is necessary in prosecuting a search for the eggs of the

bird. The burrows run horizontally and to a considerable depth, but invariably (so far as my experience goes) turn at right angles at a few inches from the entrance. The tunnel terminates in a somewhat rounded cell, where, upon a little heap or bed of fine soft earth, *without any lining whatever*, the eggs are laid; these are usually three or four in number, almost globular, glossy, and of a beautiful pearly white, except that, when fresh, the contents impart a delicate pink tinge to the shell; they are in fact miniature Kingfishers' eggs. Average measurements: .59 X .48 inch.

The Tody breeds early in the year. I have seen young in the nest in April, and have also taken fresh eggs in June, so that probably more than one brood is reared in a season. Below are a few dates on which I have found or taken sets of eggs, all fresh: May 19, clutch of 3; May 20, 3; and May 24, 4; June 2, 2.

The account of the nesting of the Tody, communicated to Gosse by the late Richard Hill ('Birds of Jamaica,' p. 77), is in some respects incorrect, and obviously is not the result of personal observation, for it is difficult to understand how any one familiar with the nesting of the birds could fall into the error of speaking of the eggs as "grey, brown-spotted." With respect to the "nest" or lining of "pliant fibres and dry moss and cotton" which Hill expressly states is used, I can only say that my experience does not bear out that assertion. On no occasion have I found anything like an attempt at a nest or lining, as described above, and I have examined scores of nest-holes of this bird in many different localities.

The tameness of the Tody is well known, but, as Gosse well remarks, this seems rather the tameness of indifference than of confidence. I have accomplished the capture of specimens with a butterfly net at different times with little difficulty, and frequently a Tody has permitted so near an approach that I have been tempted to put out my hand in the hope of taking it.

The Todies keep in pairs, if not constantly, for the greater part of a season at least, and during nidification seem to range over a very circumscribed space. Their food appears to consist exclusively of small insects which they usually pursue and take after a short flight, returning constantly to the same twig, where they will patiently sit and watch, with head drawn in and beak pointing obliquely upwards, the plumage much puffed out; the wings meanwhile being flirled by a continuous, rapid, vibratory movement.

132. *Sphyrapicus varius* (Linn.).—A winter visitor, concerning whose habits I have no notes. Specimens in the Museum are labelled St. Georges, Portland, January.

133. *Centurus radiolatus* (Wagl.).—A bird of common occurrence in all well wooded districts, though I have never noted it near Kingston. Among the spreading guango trees that shade the large grass pastures of many cattle-pens in the lowlands, this Woodpecker may nearly always be seen. In one such situation near Port Henderson where there was quite a forest of guango trees, including many of unusual size, I have

counted more than a dozen of these birds within an area considerably less than an acre in extent. In the same locality, too, I have on more than one occasion surprised a Woodpecker feeding on the brilliant scarlet berries of the 'clammy-cherry'; they will also eat the berries of the pimento and, as I am assured, the fruit of the wild fig.

I have seen the nest holes of this species but the situations were always too inaccessible to admit of my examining them. Three eggs in my collection, from the Parish of St. Thomas, measure 1.11 X .74 inch.

RECENT LITERATURE.

Bendire's 'Life Histories of North American Birds.'*—The first of a series of volumes, entitled as above, is now before us. It treats of 146 species and subspecies, beginning with the Grouse and ending with the Owls, thus including the Gallinaceous Birds, the Pigeons, and the Birds of Prey. This long contemplated work, all things considered, could not have fallen to better hands, or appeared under more favorable auspices. It early interested the late Professor Baird, who for many years cherished the plan of publishing, under the auspices of the Smithsonian Institution, a comprehensive work on this subject. It was begun, indeed, as early as 1857, when a small volume was published on the Hawks and Owls, under the authorship of the late Dr. T. M. Brewer. It was found necessary, however, to discontinue the enterprise, for lack of sufficient material. During the thirty-five years that have since elapsed, not only has our knowledge of the subject greatly increased, but the materials for description and illustration have multiplied many fold. While there are still deficiencies, they are comparatively few, and perhaps the best way to supply them is to publish what is known and thus the more pointedly draw attention to the gaps in our knowledge of the subject. In a work of this magnitude it is a great thing to have made a start, and we trust the present volume is but the forerunner of a series of volumes to appear at frequent intervals till the grand undertaking is completed.

Captain Bendire's method of treatment seems well chosen; the matter, as too often is the case in 'egg-books,' is not limited to a description of nests and eggs, but includes, as the title implies, the general life histories of the species treated—their geographical distribution, their migrations,

* Smithsonian Institution. | United States National Museum. | Special Bulletin No. 1. | — | Life Histories | of | North American Birds | with special reference to | their Breeding Habits and Eggs, with | Twelve Lithographic Plates. | By | Charles Bendire, Captain, U. S. Army (Retired), | Honorary Curator of the Department of Oölogv, U. S. National Museum, | Member of the American Ornithologists' Union. | — | Washington : | Government Printing Office. | 1892.—4to, pp. viii, 414, and 12 colored plates.